COASTAL PLAIN SMALL STREAM SWAMP

Concept: Coastal Plain Small Stream Swamp communities are forests of small floodplains that have microtopography such as ridges and sloughs on a scale too small to differentiate distinct communities. They usually support a mix of species with different moisture tolerances from very wet to mesic, because of fine-scale elevational variation. Uniformly wet small floodplains may support Cypress–Gum Swamp instead.

Distinguishing Features: Coastal Plain Small Stream Swamps are distinguished from all other floodplain communities by having a mixed composition of plants with very different flooding tolerance growing in close association along a stream with only small fluvial landforms. The canopy will usually include substantial *Nyssa* or *Taxodium* along with substantial bottomland oaks and other bottomland hardwoods. Pines are often present. They are distinguished from Cypress–Gum Swamps in smaller floodplains by having a greater diversity in the canopy, generally in all strata. They are distinguished from Mesic Mixed Hardwood Forests by having a significant component of wetland species and by occurring on a floodplain. They are distinguished from Sandhill Streamhead Swamps, which occur on similar size floodplains and also have a mixed composition, by having a broader mix of plants that is not limited to the most acid-tolerant "pocosin" species. Species such as *Quercus laurifolia, Quercus michauxii, Carpinus caroliniana*, and most of the vines and herbs described below are not found in Sandhill Streamhead Swamps, while *Pinus serotina* is not found in Coastal Plain Small Stream Swamps.

Synonyms: *Nyssa biflora - Quercus nigra - Quercus laurifolia - Pinus taeda / Ilex opaca - Carpinus caroliniana* Forest (CEGL007350).
Ecological Systems: Atlantic Coastal Plain Blackwater Stream Floodplain Forest (CES203.247).

Sites: Coastal Plain Small Stream Swamps occur in the floodplains of small-to-medium size streams. They generally have microtopography created by sediment deposition and channel migration, such as slough, ridges, and small natural levees. These create a diversity of site conditions at a scale too small to support recognizable patches of Bottomland Hardwoods or Cypress–Gum Swamps.

Soils: Coastal Plain Small Stream Swamp soils are heterogeneous in drainage, texture, and organic content, both among sites and potentially at a fine scale within sites. A diversity of soil series are mapped, most frequently Muckalee and Bibb (Typic Flvuaquents), but also Johnston (Cumulic Humaquept). A significant minority are mapped as organic soils such as Dorovan (Typic Haplosaprist) or Croatan (Terric Haplosaprist).

Hydrology: Coastal Plain Small Stream Swamps are generally seasonally flooded but some may flood more or less often. Floods are usually of shorter duration than in larger floodplains, rising and falling more quickly because of the smaller watersheds. Many of the creeks have enough current during floods to scour local areas. While they carry little sediment compared to brownwater rivers, those in watersheds with clayey or loamy soils may carry some sediment. Wetness when not in flood is heterogeneous. Low areas may remain saturated for long periods, and local areas may receive seepage from adjacent uplands.

Vegetation: Coastal Plain Small Stream Swamps are forests with extremely variable composition and generally a mix of species with different moisture tolerances. Generally no single species dominates. Highly constant species in CVS plot data and which may codominate locally include *Liquidambar styraciflua, Quercus nigra, Quercus laurifoilia, Acer rubrum* var. *trilobum, Pinus taeda, Liriodendron tulipifera,* and *Nyssa biflora*. Also fairly frequent are *Quercus michauxii, Taxodium distichum, Quercus alba, Carya cordiformis*, and *Fagus grandifolia*. The understory may be dominated by *Carpinus caroliniana, Ilex opaca, Persea palustris*, or *Magnolia virginiana*, as well as canopy species. The shrub layer is usually moderate in density. The most constant shrubs include *Arundinaria tecta, Euonymus amerianus, Cyrilla racemiflora*, and *Viburnum nudum*. Also fairly frequent are *Clethra alnifolia, Eubotrys racemosa, Morella cerifera, Lyonia lucida, Leucothoe axillaris*, and *Cornus stricta*. Less frequent in plots but sometimes notable are *Sabal minor, Vaccinium fuscatum, Vaccinium formosum, Hamamelis virginiana*, and *Lindera benzoin*. A wide range of woody vines may occur, including *Toxicodendron radicans, Smilax rotundifolia, Bignonia capreolata, Hydrangea (Decumaria) barbara, Muscadinia rotundifolia, Parthenocissus quinquefolia, Smilax glauca, Smilax bona-nox, Smilax walteri, Campsis radicans, Gelsemium sempervirens*, and *Berchemia scandens*. The herb layer may range from sparse to dense and may be quite variable among microsites within the community. The most constant species in plot data are *Mitchella repens, Lorinseria areolata*, and *Osmunda spectabilis*, but additional species that are fairly frequent include *Boehmeria cylindrica, Osmundastrum cinnamomeum, Athyrium asplenioides, Dioscorea villosa, Carex debilis, Carex gigantea, Leersia virginica, Chasmanthium laxum, Dichanthelium boscii, Hypericum walteri, Hexastylis arifolia, Impatiens capensis*, and *Lycopus virginicus*. Clumps of *Sphagnum* spp. may be present locally.

Range and Abundance: Ranked G4? Coastal Plain Small Stream Swamps are common throughout the parts of the Coastal Plain beyond tidal influence. They are often left in recognizable condition even when the surrounding uplands have been heavily altered. The synonymized NVC association is attributed to states from North Carolina to Alabama, including Florida.

Associations and Patterns: Coastal Plain Small Stream Swamps are a regular part of the landscape mosaic in dissected areas other than the Sandhills region. Some are bordered by Mesic Mixed Hardwood Forest, Dry-Mesic Oak–Hickory Forest, or Basic Mesic Forest on steep bluffs. Those in less steep terrain are naturally bordered by longleaf pine communities. Those near enough to the coast may grade to Tidal Swamps downstream, while others will end at a large blackwater or brownwater river floodplain.

Variation: Coastal Plain Small Stream Swamp is one of the most variable communities in the Fourth Approximation. Recognition of variants or subtypes may be appropriate; however, the variation has not been sorted out enough to do so. Several associations in NVC appear to overlap this concept, but they do not fit the occurrences in North Carolina well and do not appear to represent a good division of subtypes for North Carolina occurrences. Instead, there may be variation between those in sandy areas and those in loamy or clay-rich areas, analogous to the difference between the Blackwater and Intermediate subtypes of Cypress–Gum Swamp. There may be differences based on stream gradient.

Dynamics: Most of the dynamics of Coastal Plain Small Stream Swamps are similar to those of blackwater floodplain communities. Flooding brings little sediment but likely provides some nutrient subsidy.

The role of fire is not well known but likely is limited under natural conditions. Those at the bottom of steeper slopes or bordered by mesophytic vegetation are naturally sheltered from fire. Those bordered by longleaf pine communities were naturally exposed to fire frequently. However, the predominantly forb and fern herb layers are not highly flammable during the growing season and wetness limits fire penetration in much of the winter. Floods which redistribute litter also reduce the ability of these communities to carry fire.

More than most other floodplain communities, Coastal Plain Small Stream Swamps are subject to the dynamics of beaver behavior. Beaver dams may turn them quickly into Coastal Plain Semipermanent Impoundment communities. Once ponds drain, it may take many years for the typical forest to return. It is not known how much of the landscape's small stream floodplains were impounded by beavers under more natural conditions, or whether ponds shifted frequently or were relatively stable. In the last two to three decades, beavers have impounded many of the small streams in some parts of the Coastal Plain.

Comments: This community type has been narrowed from the definition in the 3rd Approximation. Pocosin-like small stream bottoms in sandhill terrain have been put into the Sandhill Streamhead Swamp type, and those strongly dominated by *Nyssa* or *Taxodium* have been put into Cypress–Gum Swamp. Coastal Plain Small Stream Swamp remains for small streams that have highly mixed vegetation due to variable flooding regime and microtopography. The Brownwater Subtype in the 3rd Approximation has been dropped, as no well-developed examples were found.

This community has had relatively little study. Bledsoe (1993) described the microsite variability of vegetation along one stream, including an interesting mix of species typical of blackwater and brownwater rivers in different microsites. A moderate number of CVS plots have been collected.

Rare species: Vascular plants: *Carex lupuliformis, Chasmanthium nitidum, Eupatorium resinosum, Gelsemium rankinii, Hottonia inflata, Lindera subcoriacea, Luziola fluitans, Ponthieva racemosa,* and *Trillium pusillum* var. *pusillum.*
Nonvascular plants: *Fissidens hallii.*
Invertebrate animals: *Ptichodis bistrigata*.

References:

Bledsoe, B.P. 1993. Vegetation along hydrologic and edaphic gradients in a North Carolina Coastal Plain creek bottom. M.S. thesis, North Carolina State University.